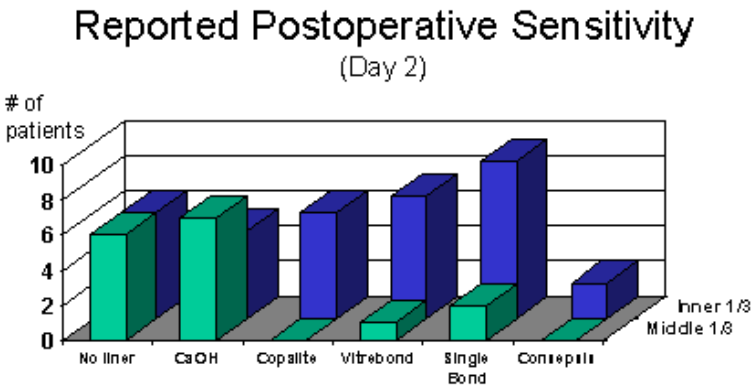
Postoperative Sensitivity with Amalgam Restorations (6/06)

Al-Omari WM, Al-Omari QD, Omar R. Effect of Cavity Disinfection on Postoperative Sensitivity Associated with Amalgam Restorations. Oper Dent 2006;31:165-170.

The purpose of this clinical study was to assess the postoperative cold sensitivity reported by patients following the restoration of primary carious lesions with amalgam after different treatments of the floor of a Class 1 or 2 preparation. One hundred twenty amalgam restorations were randomly placed in 120 patients equally divided between two groups based on the radiographic extent of the carious lesion (i.e., 60 - middle third of dentin, 60 - inner third of dentin). Six different pre-restorative regimens were used: Group 1 – no treatment; Group 2 – calcium hydroxide liner (Life, Kerr); Group 3 – copal varnish (Copalite, Cooley & Cooley); Group 4 – resin-modified glass-ionomer liner (Vitrebond, 3M ESPE); Group 5 – adhesive resin liner (Single Bond, 3M ESPE); Group 6 – chlorhexidine disinfectant (Consepsis, Ultradent). Patients were contacted via telephone on days 2 and 7 and asked if cold sensitivity was present, based on an ordinal rating scale. Any patient experiencing sensitivity at day 7 was contacted again at 30 and 90 days. **Significant differences among the different types of liners were evident, with chlorhexidine-treated restorations producing the fewest sensitive teeth. Forty-three percent of patients reported postoperative sensitivity at day 2, which decreased to zero at three months. Also, there were significantly more teeth with postoperative sensitivity at day 2 with lesions in the inner third (58%) compared to those lesions limited to the middle third (27%). Beyond thirty days, postoperative sensitivity was not affected by the preparation treatment or the depth of the lesion.**



DECS Comment: Fluid movement within the dentinal tubules is widely held responsible for tooth sensitivity. Factors that may contribute to fluid movement include desiccation, temperature change, chemical agents and bacteria. Contrary to popular belief, the preponderance of clinical studies have demonstrated no difference in sensitivity reported by patients receiving amalgam restorations with or without resin adhesives.[1,2] The authors speculated that the disinfectant removed bacteria from the smear layer and therefore reduced sensitivity. However, limitations to this study are the relatively small sample size (20 per treatment group), the placement of restorations by dental students in a teaching setting, and the assessment of postoperative sensitivity with a telephone conversation.

References

1. Mahler DB, Engle JH, Simms LE, Terkla LG. One-year clinical evaluation of bonded amalgam restorations. J Am Dent Assoc 1996;127:345-349.
2. Smales RJ, Wetherell JD. Review of bonded amalgam restorations and assessment in general practice over 5 years. Oper Dent 2000;25:374-381.